

About the Author

Bjørn Grinde (born 1952) received his education in natural sciences, psychology, and anthropology from the University of Oslo, with a Dr. Scient. (1981) and a Dr. Philos. (1984) in biology. He is presently employed as Chief Scientist at the Division of Mental Health, Norwegian Institute of Public Health and as a professor at the University of Oslo. His scientific production (some 120 papers) is related to genetics, microbiology, molecular biology, and human behavior. A lasting focus has been to understand the process of evolution. He has previously served as a professor at the Medical Faculty, University of Bergen, and worked as a scientist in the United States and Japan.





Human behavior has been a particular interest for almost four decades. He believes that knowledge about how evolution has shaped the human mind may help us improve conditions for mankind. This conviction has led to the publication of two popular books, one in Norwegian, *Genene–Din Indre Guru* (Grøndahl Dreyer, 1996), and one published in the US, *Darwinian Happiness–Evolution as a Guide for Living and Understanding Human Behavior* (Darwin Press, 2002). The present book is a translation from the original work in Norwegian, *GUD–en vitenskapelig oppdatering* (2008).

Grinde is a member of the Human Behavior and Evolution Society and the International Society for Human Ethology. Besides research, he has been actively engaged in popularizing science—by writing articles regularly for newspapers and magazines and by participating in radio and TV programs for the Norwegian Broadcasting System. He enjoys nature, both in the human form, and in the absence of humans, with a particular fondness for mountains. He is not associated with any religious denomination.



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God

A Scientific Update

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The Bible dates back a couple of thousand years. It describes reality—that is the world, mankind, and God—based on the wisdom of the time. Current knowledge offers a considerably improved foundation for understanding issues of relevance to religion; thus, it is time for an update.

I believe the time is also ripe for resolving the conflict between science and religion, as religion has a lot to offer society. Science can tell us how we ought to deal with the world; religion can help us get there. As Einstein once said, “*Science without religion is lame, religion without science is blind.*”

—BJØRN GRINDE



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A Scientific Update

by
Bjørn Grinde



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8/30/2010 1:03 PM

Contents

| | |
|----------------------------------|------|
| Preface | ix |
| Acknowledgments | xiii |
| Chapter One: The Divine Force | 1 |
| A Source | |
| Painting Portraits | |
| Why Pray for God's Presence | |
| Chapter Two: Science and Reality | |
| God | |
| Mankind | |
| The Scientific Point of View | |
| God's Attributes | |
| Connecting with the Divine | |
| Prophets | |
| Unity with the divine | |
| Chapter Three: The Creation | |
| Creating as Narrative | |
| The Birth of a Universe | |
| Planets, Stars, and Galaxies | |
| Life on Earth | |
| A Unique Species | |
| A Creative Force | |
| Chapter Four: To Be Human | |
| Divine Directives | |
| Quality of Life | |
| Morality | |
| Listen to God's whisper | |
| Chapter Five: Heaven on Earth | |
| Where Do We Stand | |
| Where Do We Go? | |
| Appendices | |
| Index | |

Text Figures

1. Evolution—God's Tool?
2. Pioneers of a Unified Religion
3. The Age and Size of the Universe
4. Dark Forces
5. Dead or Alive
6. Luca—a Portrait
7. Life the Way You See It
8. Eyes and Brain—Your Most Important Assets
9. Tools of Evolution: Sex and Death
10. The Social Sense
11. The Sensible Hedonist
12. Let It Flow
13. Together We are More
14. Do Animals Have Morals?

List of Appendices

- I. Related Portraits
- II. The True Faces of Reality
- III. Religion: The Role of the Genes
- IV. Is There Anybody Out There?
- V. Be Conscious of Your Unconsciousness
- VI. Meditation

List of Illustrations

Preface

Religion has been caught in the crossfire, a focal element in many of the conflicts tormenting the world today. It is tempting to appeal to spirituality in times of tension—tempting because religion has the power to bring people together, and because it is easy to define enemies based on differences in belief. Thus, wars are made in the name of God, and faith is used to suppress opponents. In either case religion is blamed.

God is also under fire from a different angle; the discord between science and faith causes almost as much controversy as recruiting God for duty in time of war. The conflict between science and religion, in combination with the association between faith and aggression, has produced considerable aversion toward any form of spirituality. The critique is relevant and yet somewhat unfair. True, most religions have been involved in some sordid affairs, but that is not the complete picture. Mass media are partly responsible. Drawn toward conflicts, journalists tend to create a biased depiction; their focus is on the negative aspects of religion such as war, terrorism, and repression. The positive qualities are rarely discussed. A vast number of people have found considerable comfort and joy in faith, and most religions are primarily aimed at helping strangers, rather than killing them. Thus, religions not only promote hostility, but they are also deeply involved in alleviating calamities by appealing to compassion and tolerance. In order to obtain an unbiased view, it is essential to consider carefully what impact religion really has on society.

The question is: What carries most weight? What if all that has happened in the name of God should be added to a scalepan—the good on one side, and the bad on the other—without considering whether it is appropriate to put the blame, or praise, on God. In a way, this would be “A Day of Judgment for the Divine.” My discussion presumes that the scalepan with the good will hit the ground.

Then again, history is not giving us the answer we ought to seek; it is the future we should care about—not the past. It is conceivable that a hundred years from now people will not even consider bringing out the scale. Depending on how we are able to reap the potential that is present in human spirituality, the contribution of future creeds to improving society may be vastly superior to what we have seen in the past.

It is important to keep in mind that, biologically speaking, humans have not changed appreciably over the last 100,000 years, and are unlikely to do so in the next thousands of years. Our innate tendencies towards spirituality will remain—as will our predispositions for both violence and compassion. We need to make the most of human nature as it is. Taking advantage of human spirituality may prove a highly rational stance.

When it comes to improving the condition of humankind, science and religion both have crucial contributions to offer. If we are to benefit from mankind's spiritual propensity, we need a platform that deals with the following three issues: One, how to reconcile science with religion; two, how to create tolerance among different religious doctrines; and three, how to strengthen the positive aspects of human spirituality. I believe a first step towards creating such a platform is to update the religious perspectives with regard to our present knowledge. That is the main topic of the present text.

The concept of God has many denotations. In the Western world most people associate God with the Christian God, but human spirituality is far more diverse. Mankind has generated numerous belief systems, and those with us today are continuously changing. Skepticism toward certain aspects of any particular creed should, therefore, not be considered grounds for rejecting religiousness altogether. It is possible to find ways of worship that avoid the conflicts mentioned above.

No creed remains untouched by the shifts of society. On the other hand, arbitrary changes, whether in religious doctrine or other aspects of human culture, are not necessarily improvements. Thus, the important question is how to use human ingenuity to improve, or bring out the best in, our systems of faith.

For me, the concept of God includes all types of spiritual worship. The Divine Force I describe is meant to be a common denominator for the various creeds. The concept can be given a minimum of content by associating it with the creation of the Universe. Whether or not God exists is then a semantic question. Not so many years ago scientists assumed that the Universe had always been there; today we are fairly certain it had a beginning. The term "God" can be used as a name for the foundation or origin of our

Universe or as a name for what constitutes the Universe. I hope those who have an aversion toward the word “God” will consider the use of the word herein with an open mind.

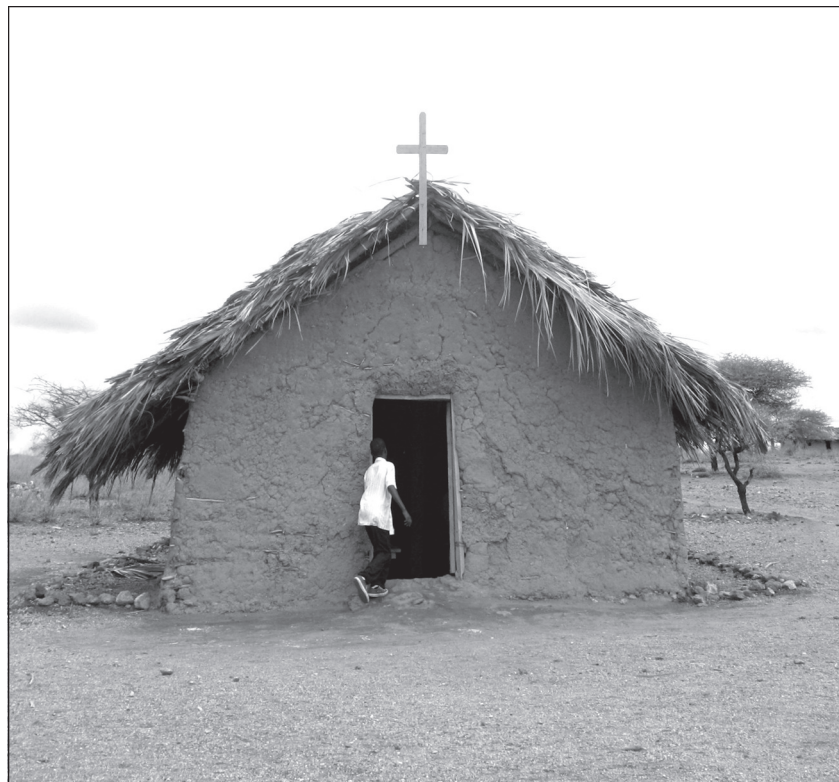
The first two chapters of this book add substance to this concept of God and deal with topics that are close to the core of most denominations. The following chapters deal with two topics that are close to the core of most denominations: The third chapter details the current model for what the Universe is and how it came into existence, i.e., the Story of Creation. The fourth chapter offers advice about how one ought to pursue life, including the question of a moral code. The final chapter looks to the future.

The Bible based its Genesis and its moral commandments on the knowledge available at the time. The purpose was to help people understand and relate to the world they lived in, including how to interact with fellow human beings. Over the course of the past two thousand years, there has been an enormous expansion of knowledge. Unfortunately, it has proven difficult for Christianity, or for that matter other religions, to adapt to these advances. The abyss separating the secular and spiritual aspects of society has widened to such an extent that it seems nearly impossible to find a way across.

I believe, however, that it *is* possible to close this abyss or, at least, to construct a bridge—without compromising either faith or science. With this as my goal, I shall describe our present scientific understanding of the Universe and life on Earth, but at the same time suggest a spiritual way of sensing the world. My intention is to create a basis for those denominations that wish to adapt to present realities. Science is difficult to avoid. Yet, as will be explained, this does not necessarily mean the various faiths need to reject their own visions and principles.

Human spirituality has a considerable potential for improving society. Although science *provides* us with knowledge, religion is important when it comes to *utilizing* present wisdom. Commandments from God have certain advantages, when compared to laws or professional recommendations, in that there is a tendency for people to prefer spiritual advice.

This book contains *footnotes* with comments and references for further reading. Although much of the relevant information can be found on the Internet, I tend to avoid Internet addresses—because they are volatile and because relevant pages can generally be found using keywords from the text. Also included are text figures and appendixes for the purpose of providing supplementary information pertaining to particular subjects. The book is illustrated with photographs taken by the author and meant to reflect religious sentiments. An *index* concludes the book.



Tanzania



Acknowledgments

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CHAPTER ONE



The source. From the garden of a former monastery in Bavaria.
(kilden)

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The Divine Force

A Source

We humans have always searched for a mythical Force, and the search has not been in vain. A Force has revealed itself by providing a feeling of closeness to an intangible entity revered for having blissful qualities. For many people this revelation is the gateway to a wonderful state of mind. Besides an intense joy, engaging in this entity typically includes a sense of unity with all living creatures; moreover, the entity can serve as a close companion and a dear friend. People like to refer to this mind-capturing source as *Divine*, or simply as *God*. For those who know how to engage, the source can relieve the stress of living, offer guidance through the jungle of life, and cause considerable contentment. It is like a well where the water only rises the more one drinks.

Although the capacity to sense divinity appears to be laid down in the design of our brains, there will always be those who, for various reasons, close their minds.

Humanity is moving toward a dark landscape. Around us we **are beginning to** recognize threatening contours in the form of ecological destruction, war, and famine as well as social and economic breakdown. Some dangers are nearby; more lurk in the distance. We may be able to find paths that avoid many of these obstacles, but others, such as pollution and the draining of resources, seem almost impossible to deal with. We need all the help we can get in order to find, and follow, a navigable course.

Yet, it seems that we are about to turn our back on a phenomenon that may help us. The source we refer to as God can offer a helping hand. Science provides a way for us to *find* a sustainable path, but it is not sufficient to *know* which trail one should follow. We are not that good at making sensible decisions. For example, it does not help to know how to avoid war and environmental destruction if we cannot persuade people to cooperate in implementing solutions.

Religion offers something that is complementary to science: God can impact on the human psyche in a special way, reaching emotions that science is unable to touch. People follow God. To the extent that we are able to comprehend our problems, God can “hold our hands” and lead us down the right path.

There are, however, reasons why we should be cautious when drinking from the spring of divinity. It may be dangerous. We should be careful not to become too inebriated by the holy water since it is important to retain critical judgment. It is paramount that science be included in our efforts, because science provides the best opportunity for locating a navigable path. We need to apply all our knowledge to ensure that God leads us in the best possible direction.

There are those who work hard to put a lid on the Divine well and prevent people from coming near, the reason being that human history reflects a vast variety of adverse consequences stemming from religious engagement. In order to take full advantage of this source, we need therefore to resolve some issues. We must find a way to handle three problems that together tend to limit the benefits inherent in an otherwise fruitful fountain:

1. Many people not only deny the existence of any form of divinity, but also try to prevent others from taking advantage of their inner spirituality.
2. Among those who sense God, some end up in trivial and disruptive conflicts over how best to describe the Divine.
3. God can be used for evil purposes, or simply lead us in a wrong direction.

With regard to the first problem, there will always be people who readily form an intimate relationship with God, as there will be those who are unable to sense anything Divine. We need to accept the diversity inherent in the human race; however, never before has divinity faced an adversary—modern science—that claims to be able to deprive it of all its power.¹

¹ See, for example, Richard Dawkins, *The God Delusion* (2006). In 2008, Dawkins, formerly a Lecturer and reader in zoology at Oxford University, recently retired from his post as Simonyi Professor of the Public Understanding of Science at Oxford. He has been referred to as the “chief gladiator of science” in the battle with religion.

Science-based criticism became obvious during the Age of Enlightenment in the eighteenth century. The main point then, as now, is that society should be based on a rational understanding of reality, and that God is an obstruction to this stance. Divinity is indefinable and as such is undesirable—even more so because many of the historical doctrines stand counter to current science. Certain religions, including Christianity, are particularly vulnerable to scientific criticism. Christians sometimes use the torch of science to illuminate the details of their doctrines, for example, in trying to verify the biblical “Story of Creation.” This tends to backfire. The Bible was not written to comply with 21st-century knowledge; defending its content, as if that were the case, is asking for disapproval.

Actually most creeds are under attack, because nearly all religious traditions and writings contain passages that are not in accordance with the present understanding of the world. These texts were written at a time when science, theology, and philosophy were more unified. Two thousand years ago there was no conflict between religion and science because the Bible reflects the understanding of reality available at the time. Theology, however, is conservative by nature, and has therefore failed to revise its teaching according to more recent knowledge.

Science cannot be blown away, but should we simply deny anything religious?

I do not think the focus should be on whether the scientific understanding is correct. In my mind science offers, by definition, the best strategy for describing the world. *That, however, does not mean we need to reject God, because the worldview outlined by science is not in conflict with God's existence, only with some of the myths and dogmas our ancestors once maintained.* In fact, there are many examples proving that even the most rational scientist can sense the Divine source.²

² A well known example is Francis S. Collins. Former director of the National Human Genome Research Institute, he became head of the National Institutes of Health (NIH) in 2009, and he was awarded the presidential medal of freedom for his contributions to genetic research. He has written an interesting book about his relationship with God: *The Language of God* (2006). Einstein might have endorsed the portrait of God presented in this book.

Painting Portraits

As to the second of the three problems—the question of how best to describe God—it is pertinent to point out that throughout history the Divine has always been presented in different ways. The portraits or depictions of God are made by humans and obviously differ in design. There is nothing wrong with people forming their personal images of God. This is the way it should be. The problem is that the disparities may nourish contention and rivalry.

For our early Stone Age ancestors, differing images were probably not a problem. They interacted primarily with neighboring tribes, which meant people of much the same cultural background. Within these narrow geographical regions Divine spirits were depicted in more or less the same way. Moreover, their portraits were not designed to compete with other presentations. As population density increased, so did territorial disputes. Consequently people were forced to move around, which caused additional conflicts between tribal groups. Eventually the survival of the group became increasingly dependent on size and strength. Religion proved to be a useful tool for uniting larger congregations of people and ensuring a superior command of the community. Thus, the best religions improved survival not only for its adherents but for the creed itself.

There are certain criteria for what makes a belief system end up on the winning side. For one, it helps to draw up a clear distinction between “the true God” and the deities of opponents, and thus between “us” and “them”; two, it helps to evangelize so that as many as possible are included in the “us” group; and three, it helps to have a God that rewards those who fight on the right side. The winners are still with us, but unfortunately the qualities described above are not an advantage when it comes to improving the relationships among creeds.

The present situation is considerably different when compared to the Stone Age world. There is no longer any spare territory to move to, and conflicts are consistently destructive for all parts involved. Mankind would certainly be better off if people focused on what the different creeds share, rather than where they differ. We can and should converge on what lies behind our worship. And instead of using variations in portrayal for political purposes, we

should appreciate the cultural richness they reflect. It is not God who creates the problems; it is our attitude toward fellow humans.

People need a depiction of God. They need to imagine what God is like, because it is difficult to engage with an entity that does not have some sort of “face.” We need portrayals because they help us drink from the spring, and thereby derive more strength from the Divine source. The question therefore is whether we can create a portrait that is not so easily misused, or lead to conflict with other portraits, or with science. How can we present the Divine in a way that makes it easier for everyone to reach for this source?

A possible starting point is to consider two different approaches—two distinct strategies—for the task of portraying God.

One way to form an impression of God is through the stories we tell, the icons and monuments we create, and the mental picture we see with our inner eye. These are all inspired by divinity, but personal and cultural factors will necessarily influence their appearance. Consequently there is a new belief system in each new culture, and each individual has his or her own way of dealing with the Divine. This is the *personal portrait*.

The alternative is to try to find a more universally valid description—a vision that reflects a mythical force that can be seen as responsible for the world. This implies a description of what may be at the core of divinity—the essence that is common to all creeds. The most obvious approach is, arguably, to consider God as the Force behind the creation of the Universe and at the same time as a permeating feature of the Universe. I shall make a vague sketch of such a Divine principle, but this *universal presentation* is necessarily indistinct. The sketch lacks vitality; it lacks the color, detail, and energy of the more personal depictions. It is, in other words, deficient in key qualities that are important in order to be a focus of worship.

The point is that both these ways of describing God are useful. They are both important and appropriate because they have a lot to offer mankind. We need the personal portraits in order to develop devotion and to appreciate the Divine presence, and we need the universal presentation to demonstrate that divinity is not in conflict

with science, and to appreciate that all religions revolve around the same entity.³

The universal presentation should be consistent with scientific knowledge; however, that does not imply that there is only one possible way of depicting God. There is room for several ways of seeing—and sensing—the Divine within a scientific frame. Moreover, a portrait that is consistent with current science is not necessarily compatible with tomorrow's insight. Most likely we will never have any final version of what the Universe is like, and neither will we find any ultimate description of divinity. Fortunately, these human limitations of translating reality into words or pictures do not really matter; the personal way to sense, and appreciate, God does not require exact knowledge. The most useful portraits appeal to our emotions, and they serve us independently of any science-based worldview.

The way we relate to art can be seen as a parallel to our relationship with God: A painting is not valued for providing the most accurate representation of reality but for the thoughts and perceptions it fosters. A photo offers a more true-to-life representation, but it is within the power of a capable artist to contribute something more. An artist can communicate a novel and enticing way to perceive a person or a scenery. People judge paintings based on what they offer them personally; that is to say, what sort of ideas and emotions they foster, not on how accurate the portrayal is. Art entices us in ways that reality cannot.

On the other hand, even abstract paintings presumably reflect a motif based in reality and, at the very least, reality in the form of ideas present within the head of the artist. Paintings are typically inspired by actual objects even though the artist may distort the motif. Similarly, the various portraits of God are based on something real. In both cases—that is, the painter and the writer of reli-

³ Others have expressed similar ways of thinking. The two ways of portraying the Divine entity are, for example, related to the concepts of private revelations and public revelations as described by Reverend Michael Dowd in *Thank God for Evolution* (2007). Public revelations reflect the scientific view of the Universe, while the private revelations are the personal experiences that people have and on which they base their sense of reality and their engagement with God.

gious texts—it is a question of finding inspiration in perceived reality. The motif is out there, indifferent to the colors and lines chosen. As long as one accepts the existence of the Universe there is room for the Divine within our current understanding of reality. Moreover, the elusive quality of the entity referred to as God makes it particularly open for personal interpretation. In fact, since we know next to nothing about the actual features of the Divine, human abstractions are required in order to create any image.

Two artists will never treat a subject in exactly the same fashion. There are many ways to use art for the purpose of stimulating our senses and emotions. Some people admire non-figurative images with bright colors, others prefer more murky or more factual depictions. In the same way that we appreciate diversity in art, we can also appreciate the many different portraits of God. Moreover, rather than complain about perceived inaccuracies, we can try to engage ourselves in the visions presented. Whether it is a painting or a religious icon we have in front of us, only through commitment will they yield meaning and provide gratification.

It is not for all to enjoy art, but it is possible to develop this capacity. It is also possible to develop the ability to sense God.

This book describes possible properties of the Divine entity, but the text does not provide much more than a frame and a canvas. The personal portraits are more important than the attempt at a universal portrait presented here. We benefit from adding individual color and detail to the canvas, as it helps us engage in God. Even if the Divine can be described as a faceless Force, it is better to worship God as an enlightened and sympathetic friend. However, when people of different visions mix and for some reason fail to understand that the details of their portraits are of a personal nature, it may be useful to point out that all the portraits are based on a common divinity shared by all believers.

Critical voices tend to focus on the imperfections and scientific inaccuracies of the human attempts at describing God. Atheists do not see the authenticity behind the portraits—the deeper qualities—but object to a dubious stroke of the brush or a troublesome choice of color. They disapprove of details that do not reflect the current worldview, or commandments that are out of line with personal opinions. We find similar attitudes in religious people who



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scrutinize the details of other denominations. (See Appendix I: *Related Portraits*, p. xxx).

Spectators are expected to have opinions about works of art, and artists are usually pleased to receive feedback. Likewise, for those who have developed a particular way to sense God, it may be useful to hear comments from other people. But critics should be careful. It is important to remember that both religion and art are sensitive topics because they reflect personal sentiments and profound convictions. Expressed opinions should therefore be constructive and considerate. It is also important to remember that people have different needs and different tastes—both in terms of art and in belief systems. Details that one person disapproves of may very well be of great significance for others.

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To the extent that there is any point in assessing the quality of the various personal portraits of God, an appraisal should primarily be in terms of the impact they have on adherents. The important issue is to what extent the portrait offers benefits to individual believers and to society. Whether the portraits are compatible with scientific theory is really only relevant for those who otherwise would have problems becoming engaged in divinity.

The universal presentation, on the other hand, should adapt to current science. God is part of reality—at least according to how I use the term in the present text. It is therefore possible to paint a faint portrait consistent with the present view of the world. (In Appendix II: *The True Faces of Reality*, p. xxx, I try to add additional substance to a universal presentation of God.) The devotee of science should, however, be aware that current science does not offer a correct model for everything that goes on in the Universe; the future will surely bring a different description of reality. That, however, does not pose any problem because the universal presentation of God can adapt to changes in our scientific models. In fact, the requirement for compatibility between science and faith is not necessarily that troublesome. *If the Divine power lies in the creation of the Universe, it is reasonable to consider our scientific representation of reality as a constituent in our description of God.*

There are a vast number of portraits of the Divine.⁴ Humans have also used a variety of names. I choose to use terms such as Divine and Force, but I also refer to the same entity as God. The word “God” is perhaps the more controversial. I use it because this is what divinity is normally referred to in the Western cultural tradition. There is, however, a strong tendency to associate the name with Christianity or Islam. In this book, God has the wider meaning of being a name for anything that is in the focus of spiritual devotion.

I consider God as something you can have a personal relationship with. That does not mean God needs to be viewed as a being or

⁴ Anthropological estimates suggest that humans throughout history have created some 100,000 distinct creeds. See A. F. C. Wallace, *Religion: An Anthropological View* (1966). Actually, as each religious person has his or her own way of relating to God, the total number of ways to sense the Divine is limited only by the size of the human population.

a tangible creature. Those who prefer **to do** so may further personalize God, for example, by referring to the Divine as Him or Her, while others may prefer to imagine divinity as a vague force. It is up to each person to add content. Some like to see God as a living being, perhaps with a human face, while for others it is a question of some sort of “energy.” It is also up to the individual to choose different names, such as Gaia, Creator, or Universe. Those who dislike the word “God” may, when reading this text, substitute God with whatever term they prefer.

Renaissance painters liked to depict God as an old man with a grey beard crawling around in the clouds. Personally, I am not surprised that after millions of hours spent peeking out of airplane windows, nobody has ever seen such a figure. I disagree, however, with claims that the term “God” cannot correspond to anything real. Other relevant, descriptive words include “ultimate reality,” “unified laws of nature,” “the story of everything,” the “source,” or “utmost authority” of the Universe. I consent to all these terms. I can also agree with those who claim that God does not exist—if *the content they add to this word differs from that of the present text*.

Why Pray for God's Presence?

Some atheists claim to know more or less everything that goes on in the Universe, and that upon leaving no stone unturned, there are no traces of God. They also claim that the lack of any tangible signs of spiritual energy implies that no such being or thing exists, and that any alternative stance is meaningless.

The atheist viewpoint is in principal rational: Science does offer the best description of our physical reality, and it is difficult to find God in the light of a scientific torch. Nevertheless, those who sense God's power and beauty know that this light does not shine on everything. It is not a question of looking carefully enough, or of finding hidden corners of the Universe, but a question of knowing *how* to search. You need a special torch that actually illuminates God's existence.

Those who, in their mind's eye, possess such a torch, feel God's presence in the midst of a rational perception of the world. God is not hiding behind a rock. The Divine power is there right before your eyes, situated in the waves of the oceans, in the flow of the riv-

ers, the beauty of the smallest flowers, and the serenity of the highest mountains. The point is that you may need to close your eyes in order to see, because to perceive God requires awareness rather than comprehension.

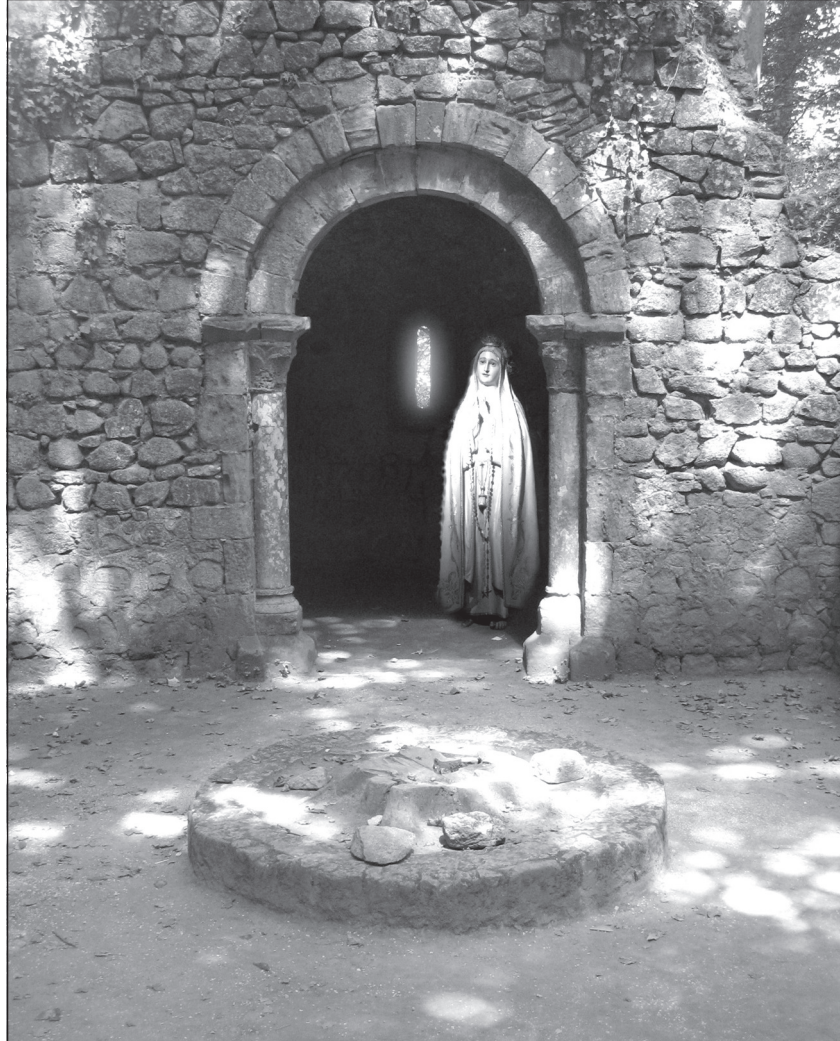
If the word “God” is used simply as an alternative name for the Universe, then you look straight at God every time you open your eyes. A lack of acceptance could be compared to not seeing the forest, but only the trees. For me, however, God is a bit more than just the visible, material aspect of the Universe. God is an entity that created and permeates everything.

No matter how deep you focus, you will never see an elementary particle; scientific experiments may, nonetheless, convince you that they exist. The presence of a pervasive God can only be conceived through an emotional engagement. You may never stand face to face with God, but you may sense a Divine presence in nature, and you may meet God in your mind.

We typically talk about *believing* in God, although belief is perhaps not the essential element of faith. The Latin word for religious confession, *credo*, can be translated as “I give my heart.” The term reflects that religiousness is primarily about an emotional engagement; it is about having a personal relationship with God.

You do not need to analyze all aspects of a person in order to develop a friendship. In fact, you do not really need to know much at all about that person; it is sufficient to feel that he or she is someone you want to be with. The same can be said about relating to God.

It should be possible to resolve the conflicts involving faith. I believe that a central element of resolution is to assimilate the Divine with current scientific knowledge and at the same time to accept that there are many ways to worship God. In other words, believers are required to consent to the notion that their portraits of God, even if they are inspired by the Divine, are also flavored by human creativity. Atheists should probably accept that the term “God” can reflect something real. If people agree with these statements, we can perhaps calm the flames that nourish both the disputes among various creeds as well as the discord between science



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and faith. To this purpose we need a description of the Divine based on current knowledge.

But is this not what all religious scriptures are about? The various prophets described God as best they could. The depictions reflect the knowledge and cultural scaffold of their times, in addition to the prophets' personal ways of sensing God. The story of divinity has been told again and again a thousand times. It is just that the presentation ought to be updated *occasionally*.

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An updated version is particularly important today as a result of the enormous progress in our understanding of the Universe and life on Earth. Current scientific knowledge implies that some aspects of previous descriptions of God easily fall short, but it also means that we have more information to add. Most religions include interpretations of how the world was created; a well-known example is, of course, the story of Genesis in the Bible. Science has now placed us in a position to outline the Creation in a way that not only is far more detailed but also far more fascinating than the Book of Genesis.⁵

Two thousand years ago, religion and science stood together. The wise men who tried to understand observable phenomenon were involved in both—presumably at the same time. The religious aspects were part of their experience of reality; spirits and other forms of divinity were an integrated aspect of the insight they used to explain everything from the fate of humans to natural phenomena. Today, scientists and religious devotees belong to two different camps, and between the camps is a deep gap that restricts communication.

Written language is a blessing but also a likely culprit in the present schism between science and religion. As long as the cultural transmission from generation to generation was oral, it was easy to update the ideas expressed, including those of a religious nature. Consequently, novel notions concerning secular matters did not find resistance in the spiritual sphere. Havoc occurred, however, upon the invention of writing. Written statements are much better preserved and consequently less adaptable than their oral counterparts. Moreover, the profession of the priesthood, which was set up to deal with spiritual matters, grasped the opportunity to declare the written accounts the primary source of knowledge. As science gained an ever deeper understanding of reality, the gap between the scriptures and the sciences widened. Of course it meant conflict. Following the advances in knowledge beginning in the Renaissance, and the concomitant improved availability of printed books, there are simply too many examples of these conflicts leading to overt combat.

⁵ In Chapter Three, “The Creation,” I shall detail the present version of how we understand our Universe.

It is a paradox that today, when the conflicts related to religion have made it so difficult to live with God, spirituality may actually be particularly important. Obviously we can survive without religion. We can also survive without art, music, and love. Contrary to the notions of some scientists, most people live happy lives even without any deeper comprehension of science. Still, all these aspects of human endeavor have a lot to offer—religion not the least.

Indeed, several scientific studies conclude that believers have on average better health and happier lives.⁶ Moreover, God can be the factor required to avoid the Armageddon the world seems to be heading toward. Based on the capacity to influence the human mind, religion may help us organize humanity so that not only we who are alive today, but also the population of tomorrow, can lead decent lives.

As a scientist I can understand why many people refute the existence of God; after all, the traditional religious texts have their limitations. There is, however, another stance taken by many atheists that I find more dubious: Some atheists seem to consider man as a totally rational being. It appears as if they believe humans function somewhat like a computer: It is sufficient to add relevant information about what is good and what is bad, and then press the “enter” button—and *yes*, the outcome is rational behavior.

We are not computers. We are biological beings shaped by the process of evolution. This implies that we are equipped with various emotions and innate tendencies, which together have a considerable impact on observed behavior. We have, admittedly, intelligence and a strong dose of free will, more so than any other species; and we can be educated and shaped by society. It is therefore correct to point out that we have the capacity to choose our own actions and that we are open to external pressure, but we are nevertheless influenced in our decisions by various propensities laid down in the genes. In order to help people live wisely and behave nicely, it is therefore useful to employ other means than just pure logic. I believe religion is the most potent tool at our hand in this respect.

⁶ H. G. Koenig, M. E. McCullough, and D. B. Larson, *Handbook of Religion and Health* (2001), offers a comprehensive overview. See also, A. L. Ferriss, “Religion and the Quality of Life,” *Journal of Happiness Studies* 3 (2002): 199–215.

Religion offers the possibility of stimulating the positive aspects of the human psyche—our compassion and love—and of curbing our inherent egoism and violent tendencies. The opportunity rests in our hands. It is a question of managing the Divine source wisely; that is to say, to encourage the positive features of faith, and avoiding the adverse consequences.

Avoiding the unfortunate outcomes of religious behavior is perhaps the biggest challenge. Even those who are unable to sense God tend to accept that there is strength in faith—that in the concept of divinity rests a considerable capacity to capture the minds of people. Unfortunately, it is possible to use this source for both good and evil purposes; considerable violence and atrocities have been carried out in the name of God. Although this quandary, which represents the third and last of the aforementioned problems, is difficult to handle, it should not be insurmountable.

Most people, both believers and non-believers, probably agree that there is no such thing as a malicious God. Although several religious texts describe God as an entity responsible for considerable hostility, these references presumably reflect the thoughts of the authors, not deeds performed by any Divine power.⁷ After all, the personal portraits reflect human nature, and in humans it is easy to find both good and evil.

It is also important to point out that, although religion can be employed to promote or intensify conflicts, humans are rather adept at killing in the absence of any Divine support. The worst crimes against humanity in the 20th century—Stalin's Soviet Union, Nazi Germany, the Cultural Revolution in China, Pol Pot's Cambodia, and the Hutu-Tutsi conflict in Rwanda—were not based on religious sentiments; that is to say, the perpetrators did not lean heavily on any spiritual ideology to back up the genocides. It is tempting to point out that the religiously driven conflicts of recent history did not escalate to mass murder of the same magnitude.

⁷ Religious texts typically include passages where God displays wrath or encourages combat. Presumably these passages were written for the purpose of persuading people to comply with moral standards, or to gather people in the face of external threats. In the Bible (KJV) you may look up these references: Numbers 31:17–19, most of the book of Joshua, and II Samuel 24:15.

We take notice when people kill in the name of God, but what about all the killings that did not take place? The murders that were stopped because various creeds appealed to our compassion for various humans, after all, is the more fundamental component of most creeds. The observation that the worst genocides were committed in the absence of religion does, however, suggest in which direction the net impact of faith has been. Moreover, if you look at those who donate both money and time to help others, then a religious attitude seems to offer the strongest correlate.⁸

Another oft-cited example is that Christianity is guilty of complicity to slavery in North America. This may be true, but bondage was invented long before the time of Christianity and would certainly have flourished in the absence of any support from the clergy. Moreover, those who put the blame on religion appear to forget that Christian attitudes were also crucial for the movement that managed to abolish slavery.

It is true that religion has been used to defend and maintain dubious practices, but it has also been a vital force in the fight to avoid violence and abolish oppression. Atheists typically pay attention to the former, but not so much to the latter. If we were to judge religion for what has happened throughout human history, it is necessary to have some idea about what would have been in the absence of faith. We do not know. But it is far from obvious that journalists and writers of history would have fewer wars and less misery to gorge upon.

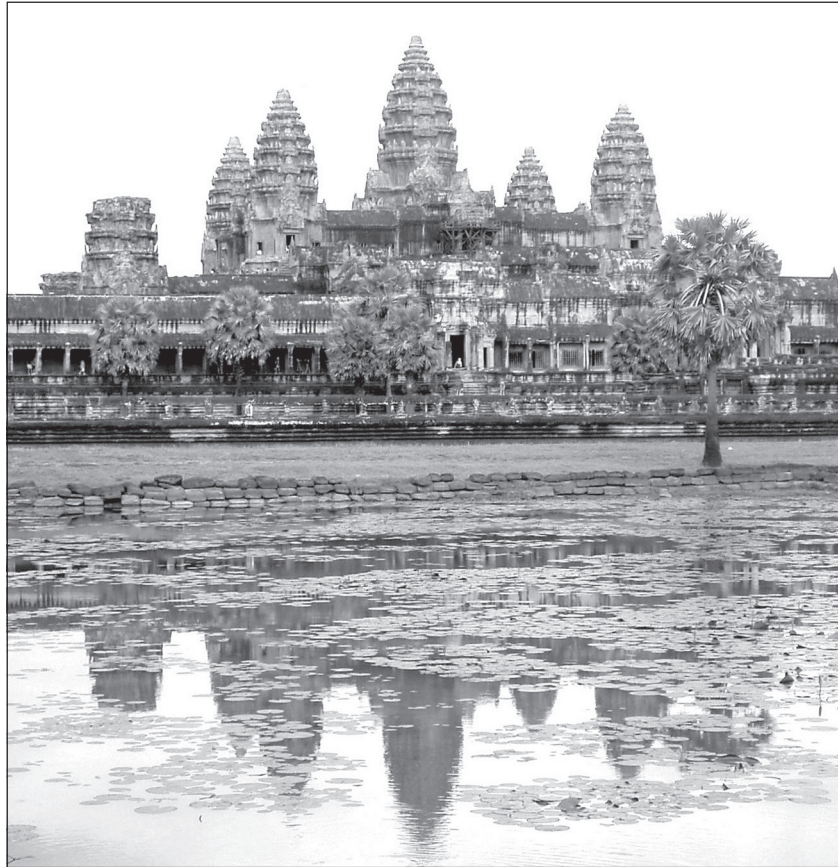
In other words, there is no reason to assume that society can avoid violence and tyranny just by burying God—or that the absence of spirituality is the key to kinder citizens. A better strategy is to find, and resolve, the secular causes of conflicts; and to appeal to God for help in implementing possible solutions.

There is hardly any doubt that religion can be exploited in connection with war and conflict, but a different aspect of human nature is also often misused in these situations: Our compassion for others is almost as potent a weapon as religion!

War has a lot to do with solidarity among people. Those who lead the soldiers put great emphasis on community spirit: “all for one and one for all.” Accordingly, soldiers are willing to risk their

⁸ See A. C. Brooks, *Who Really Cares* (2007).

lives in order to help others belonging to the same group. Thus, to a large extent their fighting is based on compassion—unfortunately at the expense of people who happen to be on the opposite side of the conflict. Nevertheless, nobody is likely to blame our inherent altruism for the atrocities of war; or claim that we should try to counteract compassion in order to prevent possible misuse of this aspect of human nature. The point here is that both religion and empathy reflect qualities of the mind that have the potential to do much more good than evil. The intention should therefore not be to quell these properties, but to employ them for the purpose of improving society.



Angkor city building. This religiously harmonious society lasted from A.D. 900 through A.D. 1300 in what is now Cambodia.

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Some of the brush strokes in the various portraits of God have proven to be particularly adverse. For example, certain subcultures within Christianity and Islam glorify the idea of dying in war for the sake of God. A similar notion was present in Norse mythology: Valhalla, the Viking version of heaven, was only available for those who died with a weapon in hand. For the head of a state, such attitudes may seem appropriate, as they make people risk their lives for the good of the community; but in a world in dire need of peace, they are dangerous. Fortunately, it is possible to apply some novel brush strokes to the portraits of God for the purpose of altering these attitudes.

It is not possible to change divinity, but it is possible to influence how people relate to God. In short, we ought to nurture the positive aspects of faith because religion can bring out the best in people—which is why we should pray for God's presence.



CHAPTER TWO



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Science and Reality

God

Then it started. At that moment time began to move and the Universe was born—suddenly, from a position apparently containing nothing, yet including everything. In this one point and at this one instant lay the seed of a new world. The source of all matter was there, but packaged in a space without extension, and in a form we are unable to imagine. In this intangible seed was not only substance sufficient for the creation of a complete Universe, but also the physical laws and principles set to govern and thus mold all the strange things to come. Everything was released at this one moment.

What poured out of the spot was a form of energy. It spread at a speed never again to be matched. This energy of unknown character gave rise to substance in the form of *elementary particles*.¹ We call this first moment of time the *Big Bang*; although there was nothing like an explosion, just an expansion faster than the speed of light. Nothing in our experience is suitable to an understanding or depiction of what actually happened in those very first fractions of a second of what we call reality. It is possible to make vague models of the incident, but they fall short of explaining what went on. The only thing we can say for sure is that the opening scene must have been petrifying: The temperature was incredibly high, and so was the density of energy. After only a millionth of a second the cosmos was enormous, and it contained all the mass and energy that today is divided between myriads of galaxies, each with billions of stars. Our planet is less than a drop in the ocean compared to the expanse of the Universe.²

Surrounding the seed lay the quantum vacuum as an infinite scene prepared to accept the story about a new era. We are a part of this performance, “the theatre of the cosmos,” yet it is a narrative so

¹ Elementary particles are fundamental building blocks of the Universe of which all physical elements, including the atoms, are built.

² The observable Universe began with the Big Bang, but the theory says nothing about what may have preceded this event.

far-reaching and fantastic that we can only describe minor bits of it.³

What we do know is that this first incident meant everything! We are here because a seed was created, and some power, taking the shape of physical laws, ensured that the seed developed into the right kind of Universe. On the face of it, what happened appears to be completely incomprehensible. How can a Universe arise from seemingly nothing? How is it possible to capture all energy and all matter in a point without extension? What was the source of the physical laws that have done such a wonderful job at directing the cosmic theater—that is, orchestrating our Universe?

Yet, of all the questions we are struggling to answer, perhaps the most fundamental—and most astounding—is *why*? Why did it all happen? No matter how much knowledge we can provide, and no matter how detailed we understand the Universe, our scientific descriptions do not offer anything in terms of purpose or meaning.

One way of evading this challenge is to simply claim that there is no answer. Whatever happened simply happened. As a scientist this is not an entirely satisfying response, but there is an alternative stance: Something, some entity, stands behind the Creation we refer to as the Universe. That entity is a principle, or a creative power, with qualities that we are unable to comprehend. A Force with characteristics far beyond our capacity to grasp. Thus the Force that gave birth to the Universe has features that, lacking any scientific terms to describe it, may best be represented by the words *Divine* or *God*.

Some atheists dislike these terms. As far as I can see, they are left with two alternatives: Either to leave blank answers to questions such as those mentioned above about how and why the Universe was established, or devise alternative names for an underlying entity.

³ The quantum vacuum is a theoretical construct describing a kind of open scene or platform that the Universe unfolds upon. According to one theory, the scene was there even before the Big Bang, ready to care for an emerging Universe. According to this theory everything that takes place in the Universe are excitations of elementary particles upon the underlying quantum vacuum, somewhat like ripples in an all encompassing sea. The theory fits with the Buddhist notion of a “permanent identity” that is behind everything that exists.

Einstein once tackled the quandary with the following statement: "I'm not an atheist and I don't think I can call myself a pantheist. We are in the position of a little child entering a huge library filled with books in many different languages. The child knows someone must have written those books. It does not know how. The child dimly suspects a mysterious order in the arrangement of the books but doesn't know what it is. That, it seems to me, is the attitude of even the most intelligent human being toward God."

The world slowly cooled down. As a consequence, the elementary particles formed matter; they came together in hydrogen atoms. At a much later stage, a variety of atoms were created, and some of them bound to each other to form molecules, which are the construction units for the more tangible and wonderful parts of our Universe.

The particles gathered in huge clouds, which gradually developed into stars and galaxies. At one point darkness disappeared: When the temperature had dropped sufficiently, it became possible for light to exist. We can still "see" a remnant glow of this first dawn in the sky.⁴

Eons later a creature appeared—man—who fostered a relationship with whatever was accountable for the Creation. Man gave that Force the name God.

This is how the story of the Creation begins. The story of how the reality that surrounds us arose. The description reflects the current view of the wise ones—the men and women of science. Nobody knows all the details, but much of what has happened, and what still takes place, can be explored by anyone with the required curiosity and knowledge to read the scientific scripts. Gradually we have been allowed to comprehend the planet we inhabit and the

⁴ The remains of the first light are referred to as the cosmic microwave background. These microwaves consist of photons that have wandered the Universe since they were first formed some 380,000 years after the Big Bang. At that point the Universe had cooled sufficiently for electromagnetic particles, that is, photons, which includes light, to exist. For a brief introduction see R. Cowen, "News of the Early Universe," *Science News* 162 (2002): 390.



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surrounding cosmos. Our collective wisdom is almost without limits. Although much is still unclear, we are able to suggest answers to most questions.

Human insight is in itself a marvel almost as incredible as the creation of the Universe. Why do we have this capacity? Do we really need to know? Knowledge of distant galaxies is certainly not required for survival and procreation; our curiosity takes us far beyond the practical tasks associated with living. In fact, it seems as if insights into our nature have proven to be a double-edged sword—our existence has only become more uncertain as a consequence. Knowledge has caused quandaries for us, and we are about to lose control. We are in danger of destroying our basis for existence on this planet, and our intellect may be as much a cause as a solution. Consequently, one of the most exhilarating aspects of the entire story of the Creation is whether human beings will be able to control

themselves. A task that may require more than simply scientific knowledge.

There are limits with regard to how far our scientific visions can take us, and how deep our insight can penetrate. Some of the riddles of the Universe will forever rest beyond humankind's capacity to understand. We will, for example, never know what happened before the beginning of time, or what lies beyond the infinite; not to mention the question of *why* we exist. Science lacks the momentum to seriously analyze these most profound issues.

Although no one *knows*, the strange thing is that there are many who *sense* an answer: The Divine power started the Universe and ensured that it evolved in the direction of a species with the ability to understand what it is all about. This response is not based on traditional science; yet it may be able to supplement our incredible insight into reality. And, more importantly, perhaps the response can help us control what happens on Planet Earth: Religion can complement science when it comes to directing human activity.

One of the revelations research has offered us is particularly fascinating: The physical laws of the Universe, and the accompanying physical constants, are required to be extremely fine-tuned in order to allow for the formation of solar systems with planets, for the formation of life based on organic chemistry, and, not the least, to allow for the appearance of human beings. Only minor discrepancies in the laws that govern the Universe would have resulted in a cosmos where neither planets nor life can exist. This realization has been referred to as *the anthropic cosmological principle*.⁵

If, for example, the force of gravity had been stronger, the Earth would be pulled into the sun. On the other hand, if the force was less powerful, the Earth would be cast into space, and thereby lose its life-giving connection with the sun. The laws governing the relationship between elementary particles offer another example: Their design allows for the assembly of atoms of varying size and property, including the specific atoms that life on Earth is made of. Moreover, these atoms, particularly carbon, ended up with a set of peculi-

⁵ The most famous outline of this principle was written by J. D. Barrow, F. J. Tipler and J. A. Wheeler, *The Anthropic Cosmological Principle* (1988). For more recent presentations see B. Bryson, *A Short History of Nearly Everything* (2005), or J. D. Barrow, *The Constants of Nature* (2003).

ar properties that are crucial for the development of living organisms. It seems as if the laws of physics are not just incidentally consistent with biological evolution, but that they were designed for such an event to occur.

The story of life is like a fairytale. We refer to the process responsible as *evolution*, but this process is an integral part of something that began with the creation of the Universe. Evolution was made possible by the particular chemical laws of nature, which again are just reflections of the fundamental physical properties of the cosmos. Evolution directs organic development toward life with ever-increasing complexity—including more advanced nervous systems and, concomitantly, improved intellect. In other words, the opportunity to have a creature with the ability to understand was laid down in the development of our species. More importantly, the physical laws appear to be fine-tuned toward this aim. (See Fig. 1: *Evolution—God’s Tool?*, below.)

The above observation offers a kind of meaning to our existence: Are we born to be a participating and observing part of the Universe?

Figure 1: Evolution—God’s Tool?

Evolution is the process that brought life to Earth, beginning with the first, basic unicellular organisms, and continuing onward all the way to mankind and the biological diversity surrounding us. Evolution is based on two rather simple principles: The first is to produce a *variety* of individuals within a species. Biological features are defined by the genes; thus, variety can be obtained by generating changes in the form of mutations in the genes. The genes offer a blue-print as to what sort of properties the organism carrying them will have: If the blueprints differ, then the individuals will differ. The second principle is what we refer to as *selection*—the individuals that have been bestowed with the best genes survive and multiply, the others simply disappear.

The consequence of having these two principles operate is that we become increasingly improved as a species of organisms; the term “improved” implies that our species survives better when fac-

ing the challenges of the environment in which we live. In short, we have natural selection.

There is an inherent tendency in this process to create ever more advanced life forms, but that does not mean perfect adaptations. Survival and procreation is the aim; perfection is neither required nor feasible. Thus, one should not expect that the various species alive today, including us, are flawless. Yet, evolution has been a huge success. Earth has several hundred million living species, and they have adapted to living almost anywhere—from glaciers to hot springs, from cracks deep down in the crust to the air above us.

In popular presentations of evolution, it is common to use expressions such as “the genes prefer” or “it is in the interest of the genes.” This is just a simplified way to say something about how evolution has shaped the genes. Obviously, the genes themselves have no opinions or wishes.

On the other hand, you may ask whether there is a purpose to the whole process. Is there a reason why the physical qualities of the Universe allows life to happen, and is it inherent that evolution should move toward a species with the intelligence required to understand what it is all about? The process of evolution is a consequence of the qualities of our Universe. If you consider the Universe to spring out of an entity referred to as God, then it seems fair to consider evolution as a tool devised by this entity. And it is tempting to imagine that the tool was included in the repertoire of processes allowed for because it would lead to a species with the capacity to sense the Creator.

In the development of our species, evolution also included a capacity to sense the presence of a “supernatural power”—a Force that stands above us and unites all creatures and features of the cosmos. God is the preferred word used to describe the focus of this awareness.⁶

The Universe did not need any planet harboring life, and mankind could have survived without this particular capacity. Yet, the

⁶ To learn more about the parts of the brain that are active when engaged in religious experiences, see B. Holmes, “In Search of God,” *New Scientist* (April 21, 2001): 24–28; or A. Newberg, E. d’Aquili, and V. Rause, *Why God Won’t Go Away* (2001).



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miracle happened. It is tempting to believe that God wanted someone to relate to, someone capable of understanding the Creation.

The path leading from the Big Bang to the presence of human beings depended not only on peculiar physical laws of nature, but also on a long list of surprising events, as will be detailed in Chapter Three: *The Creation*. Some may argue that it is best to regard reality as a series of coincidences; they point out that no matter how small the likelihood may be that conditions in the Universe should be right for life, the probability cannot be zero. If everything is based on randomness—that is to say, our existence reflects solely fluky circumstances—then the presence of an underlying creative Force seems less likely.

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We do not have any final answer about how one should relate to reality, but the notion that our existence is based on an enormous number of lucky throws of dice seems implausible. The Universe could have remained a homogenous soup of elementary particles. The Universe did not even need to exist. The more we learn and understand how fantastic and extremely complicated the Universe is, the harder it is to imagine that all the required fine-tuning actually is no more than a series of random events. Conversely, the more likely is the presence of an underlying power, or some form of Divine Providence.

Einstein had similar thoughts when suggesting that a limited insight in nature may lead you away from God, while a deeper insight will move you toward God. Moreover, he did not like the thought that nature should be based on some element of chance, and thus stated: “God does not play dice.”

So did God, or whatever name you wish to call the forces behind the Universe, create the world for a purpose?

The associations fostered by the concept of *purpose* are probably not adequate, since it is a term designed for human affairs, and what stands behind the Creation is much grander, more incredible than our thoughts can imagine. The best we can do is to gather all aspects related to a creative entity—whether discernible, unidentified or indescribable—into a single concept: God. We have no way of telling what this concept actually entails; but the lack of definition does not mean a lack of existence; it simply implies that science is unable to outline the exact nature of the concept.

Some may think the word “God” is too pretentious or pompous to be used for an abstract entity we actually know next to nothing about. Personally I find it appropriate to use this word, but the choice is trivial; any name would do. God is simply a name chosen by people who like to venerate this entity, and for the purpose of veneration it does not matter that we are unable to provide an accurate, scientific description.

Humans have an inherent tendency to submit to leaders and to regard them with adoration. Musicians, sports heroes, and other celebrities do not need to perform grand miracles in order to be praised almost like gods. It seems natural to venerate an entity that is responsible for our existence. The concept of God is useful for this purpose.

Mankind

It took 13.7 billion years for humans to become a part of the performance we refer to as the Universe. Our arrival was unexpected and had dramatic consequences. Modern man (biologically speaking) first appeared some 200,000 years ago, but until quite recently, there was little indication that humans would be able to gain a deeper understanding of reality, or be able to change the face of this planet. Life on Earth had existed for nearly four billion years without evidence of organisms with these capacities.

Of the millions of species that have arisen on Earth, only we are capable of seeing beyond the horizon of our existence. We alone have been given the key to understand what the world is about, and the key to form our future. What has happened within historical times is exceptional, surprising and frightening. Is it ultimately laid down in the Creation that we should be here? For what would be the value of a Universe without someone with the ability to perceive it? And is the intention that we shall not only see and understand, but also participate and care about what is happening?

With the help of science we are able to model the development of the Universe step by step. We have ideas about how life arose on Earth, and how the evolutionary process led to ever more advanced organisms. Many of the details are misty, but we can offer an account, albeit vague, of the whole cascade of events. We have, in other words, been given the ability to understand what a momentous wonder the Universe is—a miracle so special and so fantastic that it is almost inconceivable. Moreover, it is within us to sense that some sort of Force is breathing life and energy into the Creation. This entity not only permeates everything, but it unites the whole by being a shared overarching code. We share the molecular principles of life with all other life forms on the planet; and our planet shares the nature of elementary particles and atoms with all other celestial bodies.

Our intellect is a blessing that has opened many doors. Not only do we understand the machinery of the Universe, but we have also been able to create our own fantastic **means and** machines. We can cure diseases, we can transform energy to suit our various needs, and we can walk on the moon. Unfortunately, it is possible that our in-

tellect can also be our enemy. It has given us the opportunity to live a life of comfort, but it has also given us the capacity to destroy the basis for our own existence—not to mention that of many other species.

It is therefore important that we are critical about how we use our knowledge. We must look ahead, far ahead, and carefully consider our actions. It is important that we try to predict the consequences of the many choices we make. In order to find the best route forward, it is necessary to exploit opportunities, but also to realize our limitations. We are not almighty. Maybe we *are* special, yet we are mere creatures shaped like all other living organisms by the process of evolution. We may consider this process a reflection of something Divine; nevertheless, it has its limitations. Evolution has given us both our strengths and weaknesses. We have a fantastic capacity for logical thinking, but also a wide range of emotions and innate tendencies that we cannot easily escape—and that at times can be quite destructive. Putting a man on the moon is the easy task, the hard part is dealing with human nature.

Sometimes we get lost. Maybe we stare for too long into the magic crystal ball we call science. It is easy to lose direction, and let inventiveness lead us down wild roads, especially when technology creates more destruction to the environment than benefits to those who live there.

It is important to understand the consequences of our actions, but unfortunately this understanding is not sufficient. It does not help to realize that we are moving in the wrong direction if we are unable to maneuver down a better path. Our power of influence ultimately depends on our ability to touch people's feelings. In order to do so we need to understand the human mind. Although insight into the inherent nature of mankind is essential, even that is not actually enough. Knowledge alone does not automatically bring out the best in us. We need to find something that can stimulate our finest qualities—something with the power required to lift us up. The human ability to sense the Divine offers an opportunity we can hardly afford to miss.

The most important wisdom is to know ourselves, and the most important revelation is to sense that entity we refer to as God.

The Scientific Point of View

Modern science contributes toward weakening our spiritual propensity, but contrary to popular belief this is not because the concept of divinity needs to conflict with a scientific worldview. Most controversies concern particular details. Science points its finger at possible “mistakes”—for example the Biblical idea that the Universe was created a few thousand years ago—but in the process tends to strike at all aspects of religiosity. Opponents associate religion with inappropriate ideas or unwholesome practice, but the concrete aspects criticized are typically associated exclusively with certain creeds—not all religious systems. Moreover, they criticize stories that stand contrary to current science, without considering whether these tales may serve the believer. After all, most people would agree that irrational sensation can in fact serve humans rather well, for example when falling in love. In short, atheists tend to take a stance against any form of spirituality without first considering whether the critique is relevant for all creeds, or whether the ideas they dislike may actually have a net positive impact on humanity. It may appear as if some people are trying to sacrifice God on the altar of science.

In order to save our relationship to God we need to present the Divine in a way that retains its dignity, but at the same time can withstand scientific scrutiny. That is to say, we need to depict God in a manner that is consistent with our understanding of the Universe, but the presentation should also provide fertile ground for a spiritual relationship. This book attempts to provide such a presentation. The text describes a principle, or power, which is behind the formation of the Universe, and thus also the evolution of life on Earth. It is possible to envision God as either being this Force or being responsible for it. These descriptions are merely variations on a common theme. The bottom line is that the Divine entity is in a way responsible for the Universe. It is thus reasonable to argue that the physical and biological guidelines orchestrating reality reflect this Divine power. We say that a mother is present in her child. In a similar manner, we may state that God is present in the stars and planets; as well as in the living beings inhabiting them—including us.

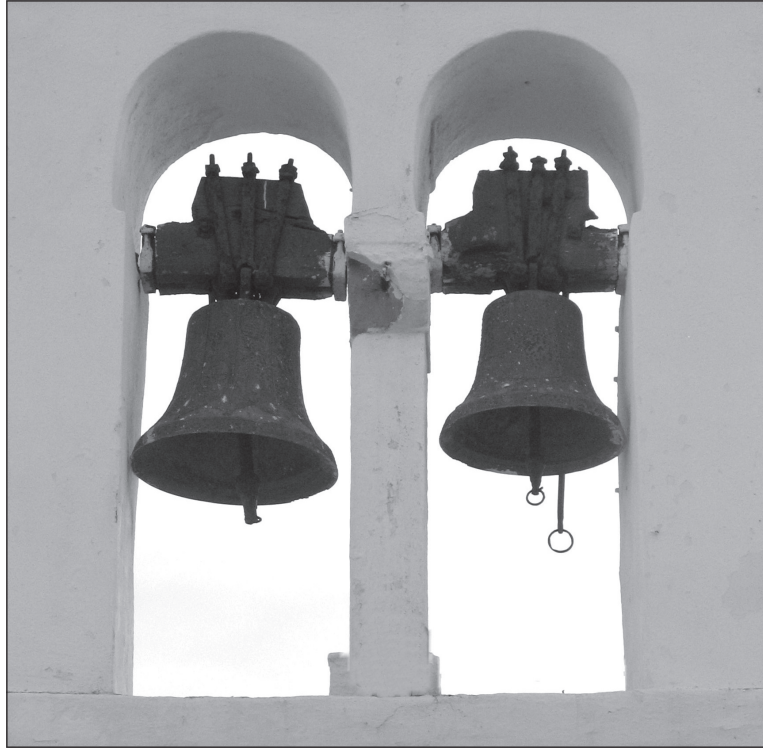


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Throughout history, there have been several attempts at portraying God in ways comparable to what is presented here. (In Appendix I [*Related Portraits*], p. [xxx](#), I have briefly described some of these.) Although it is hardly possible to refute the present notion of God, it is possible to **come up with** offer critical comments. In an attempt to meet the criticism, I shall take a closer look at the relationship between religion and science.

We do not have any definite answer as to how the Divine should be explained. One reason is that we have insufficient knowledge about the entity we choose to refer to as God; another reason is that, even if we had known God's true qualities, it would still presumably not be a single answer about how to translate that knowledge into words. In fact, many aspects of reality are too complex to lend themselves to textual brushstrokes.

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An accurate portrayal of God is a mission impossible. Human language evolved for the purpose of representing human concerns: such as our emotions, our experiences, and our everyday affairs. It is no wonder that language often falls short when it comes to the entity referred to as God. Neither are we able to offer a single, unified, and complete description of the Universe, and this is partly due to a lack of knowledge and partly a lack of words. We struggle to depict even something as small and apparently simple as elementary particles. For example, in order to characterize the properties of the particles referred to as quarks, we use terms such as “charm” and “strange,” although the normal content of these terms has nothing to do with the actual properties of quarks. Our language simply lacks words that fit.⁷

⁷ There are several popular presentations of quarks and other elementary particles. For those who prefer a version on paper, try B. Greene, *The Fabric of the Cosmos: Space, Time and The Texture of Reality* (2005).

God is infinitely grander, more difficult to comprehend, and further removed from the human linguistic capacity.

As already mentioned, God's existence is primarily a semantic issue. It depends on what you choose to mean when using this concept. If you associate God with the Universe, there should be no further need to prove God's existence. I envision God as something more than just an alternative term for the world, and I like to include the impetus that started it all, a power that permeates the Universe and, perhaps, a force with some capacity to intervene or direct later stages of reality. Is it possible to substantiate and defend this expanded concept of God against the zeal of science?

There are probably not that many ardent "crusaders" fighting religion; however, a large number of people are skeptical about the existence of any form of Divine entity, and even more so toward the ways in which humans relate to God. It is estimated that 16% of the current world population is not associated with any form of belief system. At the same time, it is evident that, even in an era characterized by scientific thought, the vast majority agrees that there is some sort of power or principle that may be referred to as Divine. In the country regarded as the stronghold of science, the United States, approximately one half of the scientific community has retained the ability to sense God's presence.⁸

Einstein once said that "The most incomprehensible thing about the world is that it is comprehensible." It is far from obvious that the Universe should be set up in a logical way with definable properties, or that we should be equipped with the intellect required to describe these properties. We may be able to offer a kind of explanation for the processes that take place in the Universe, but the deeper we delve into the details the more amazing is what we find. At the deepest level we encounter the more profound riddles such as: Is there a reason why the Universe exists, and why are we here?

Science is based on asking questions of "why" and "how"; nevertheless, these questions are almost taboo. True, it is difficult, probably impossible, to find methods that provide scientific answers, but

⁸ The best and most updated overview of world religions can be found at <http://www.adherents.com>. The article "Scientists and religion in America," *Scientific American* (September 1999): 78–83, covers the situation in the United States.



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we can propose a hypothesis—namely that the world reflects the existence of a Divine entity; and in the absence of any alternative way of responding, this seems to be a rational stance. As a scientist I will defend the right to ask any question, whether or not a scientific approach is likely to find a solution. And I tend to prefer a fragile answer, one that may not be well substantiated, rather than no answer. It is normal procedure to create vague models pertaining to uncharted territories, and then at a later point either to reject or advance the models.

In any conflict, the opposing parties tend to polarize. Both sides get stuck in the effort of winning a battle or a debate—rather than listening and evaluating with an open mind the information supplied by the opponent. The conflict between science and religion seems to be no exception. I would hope that open-minded individuals in both camps might accept the perspective presented here: In

8/30/2010 1:03 PM

short, although not all presentations of God fit into the realms of science, God fits into my reality.

Most attacks on God have been directed at the tales and doctrines of particular denominations. The Biblical description of how God created the world is, for example, unprotected cannon fodder for the crusaders of science. Such descriptions are easy to tear down, but in battering God, they appear as if they are attacking windmills.⁹ God looms behind these descriptions—not in them. Divinity does not disappear even if you manage to blow up all the statues and burn all the images that people have created. Some critical voices have recognized the above quandary, and directed their assault against the underlying notion of a Divine power. These assaults are the ones more relevant to discuss here. First, however, I have some comments about the more commonly heard critique.

Criticism related to the various details of specific religions can be both justified and constructive. When religious opinions stand in the way of common sense, and thereby obstruct constructive efforts to improve society, it may be appropriate to raise a voice. For example, denying the process of evolution may counteract efforts aimed at improving healthcare. The notion that heaven opens its doors for those who kill in the name of God is used to nourish war. Such examples stand as obvious arguments in favor of neutralizing religious concepts that can damage society, and point out that it is desirable to have a religion that embraces criticism.

On the other hand, it is unnecessary to attack people's personal images of God when these images do no harm to others. We should be able to accept that some individuals choose to believe that God created the Earth in six days. No person, including a scientist, is completely rational in all thoughts and deeds. Even the most hardcore atheist typically "believes" in such notions as human rights and moral values—even if these notions do not necessarily follow from empirical science any more than does the Bible's account of creation. In short, most people prefer to acknowledge ideas that stand with-

⁹ The fictional character Don Quixote (in the book *Don Quixote de la Mancha*, by Miguel de Cervantes, 1605) fought windmills because he considered them to be vicious giants. Attacking God's existence on the basis of human constructs, such as the book of Genesis, is, in my mind, similarly misguided.

out any firm foundation in science. It is tempting to suggest that those who do not tolerate any irrational perception in others are advised to limit their social commitment to computers.

Attacks on the underlying and indescribable Divine Force are also understandable—and potentially constructive. They may prevent someone from relating to God, but at the same time they can facilitate our efforts toward better ways of describing the spiritual aspects of the Universe.

Furthermore, science has a lot to offer mankind, and good science requires an inclination to view everything in a critical light. We need the human capacity to scrutinize and analyze, because we need what science can bring us—in terms of medical treatment, for example. It is only natural that religion also finds itself in the spotlight and I shall argue why God survives the critical light of science.

It is important to be aware that science is not about proving or disproving anything in a mathematical sense, but rather about building models that describe reality as accurately as present data allows. The quality of these models is measured according to how well they explain our observations and experiments. It is possible to create models that present the Universe without adding any divinity, but it is also possible to argue that including such an entity will tend to improve the explanations.¹⁰

In other words, it is not a question of proving or disproving God's existence. The absence of favoring evidence has limited value as evidence for claims that God does not exist—at least in the case of the vague Divine entity outlined in the present text. Scientifically speaking, it is rather a question of which of two opposing models, the one that includes divinity and the one that does not, seems more correct and more complete. Thus the issue is not so much whether the present portrayal of God is compatible with science, but whether it adds anything to our view of the world.

Possibly the most relevant argument against the existence of a Divine force is based on a principle known as Occam's razor, named after the medieval philosopher William of Occam. It is a KISS

¹⁰ Some people think of science as a method for describing our *physical* reality, leaving out the spiritual aspects of life. Personally I prefer to deal with only one model of reality in which both physical and spiritual aspects are included. The difference between these two positions, however, may be mostly semantic.

(Keep It Simple, Stupid) principle: You shall not create a scientific model that complicates matters beyond what is needed to explain the underlying observations. In other words, one ought to “shave off” any embellishments that are not required. The principle can be used to argue that the introduction of divinity is an unnecessary complication of the scientific description of the world. Put another way: God does not add anything to our understanding of the Universe.

Occam’s principle is at best a rule of thumb. There are examples of theories that at the time seemed to be unnecessarily complex, but later proved to be the more accurate description. For Medieval scientists a flat Earth offered the more straightforward explanation for available observations, *because*, after all, it looks rather flat. *While* Today this model is considered ridiculous. I shall argue that based on current scientific knowledge, there is no need to shave off God; that is, our model of the Universe is not improved by excluding divinity, but may actually stand to gain, if ever so little, by including the Divine. By adding this entity we obtain in a way a more complete treatment of reality. For example, it does suggest a sort of answer to the question of why the Universe came about and why we are here.

Science is unable to fill in all the answers to the questions we ask. In fact, in the case of certain key issues it can hardly respond at all, such as: What was before the beginning, and *why* does the Universe have the properties required to evolve advanced forms of life. Science also has problems filling in many of the uncharted areas that still exist on our map of the more accessible issues concerning reality. Some of the more problematic topics will be discussed in the next chapter, “The Creation.”

What I suggest is that certain subjects may be better dealt with in a model that allows for an underlying Divine principle. The contribution to our explanatory capabilities may be limited, but the model that includes a Divine power does offer a shade of color, or vague strokes of a brush, where present science falls short: The Divine was there before the beginning and is in a way responsible for the Creation. The very peculiar properties of planet Earth are there to allow for living organisms. The process of evolution aims toward higher complexity so that the Universe will have a Being capable of sensing what it is all about. Although the model that includes God

Madonna and child. ([ikon-a2](#))

may not be more useful for scientific endeavor, neither should it in any way hamper science. In this respect it is as appropriate as purely secular approaches. In other words, introducing God has limited explanatory value concerning most of the events we are studying, but it offers a reasonable, and perhaps more comprehensive, model. It does not add detailed answers as to what existed before the beginning, but by claiming that God has always been there, the need for an alternative answer is less importunate. It seems somewhat easier to envision that a non-physical entity such as God can exist independently of time and space.

As pointed out above, present scientific models have considerable gaps both in terms of the development of the Universe and the evolution of life on Earth. Although we can explain how the chemical building blocks of life arose, it is very difficult to imagine how these chemicals managed to unite and become the first living cells. Scientifically speaking, this event seems highly unlikely; nevertheless, it happened relatively soon after an opportunity for life emerged on Earth. Envisioning the influence of a Divine power does

not clarify our models regarding the origins of life, but it allows for an interpretation of why this seemingly unlikely event occurred.

In future we may find rational explanations that cover many of the uncharted areas on our current map. Other areas may remain as silent witnesses of a force with a potential to operate outside our scientific calculations. Even if we are able to explain all the weird things that have happened, both on our planet and in the rest of the Universe, this does not rule out the idea that there is a guiding principle behind it all. There is still room for a vague underlying entity. The existence of a Creator does not depend on having unanswered questions about the Creation.¹¹

Our scientific understanding of the world has changed dramatically over the last centuries. Gradually we realized that the Earth is just one of several planets circling the sun. We learned about how the evolutionary process forms all living things, we found other galaxies, and we described the particles and forces composing the Universe. Science is innovative, but at the same time somewhat conservative. In every era there is a tendency for people to focus on current explanations of reality. Most people, scientists or laymen, tend to be skeptical toward novel ideas. It took, for example, considerable time for the ideas of Newton and Darwin to win acceptance among a broader audience. True, religious sentiments may be more conservative than scientific worldviews, or for that matter most other aspects of human culture, but a preference for existing dogmas seems to be a distinctive human trait.

The atheistic standpoint stands strong among present scientists. The question is how solid the atheist foundation really is—when scrutinized with an open and critical eye. Is it really obvious that the only, and complete, way to describe the Universe is like an enormous collection of elementary particles that emerged from nowhere? Or are there additional aspects and properties required in order to complete the description?

Not too long ago, both science and church insisted that the Earth is the midpoint of the Universe, and that man has nothing in common with the animals. In those days, the conservative nature of

¹¹ Those interested in uncharted areas in our current world “map” may look up “Anomalies: 13 things” (several authors) in *New Scientist* (March 19, 2005): 30–37.

society made it problematic to describe the world without taking the word of the Bible into account. Today the pendulum seems to have swung in the opposite direction: It is awkward to suggest a model of the Universe that *does* include reference to divinity. A good scientist should show humility for the limitations inherent in our quest to understand. I would not be surprised if the majority of scientists at some point in the future accept a model of the Universe that includes an entity that may be referred to as God.

Science develops theories for phenomenon that we are unable to witness or experience directly. No one has ever seen a proton or a protein, but we have solid evidence as to their existence. That is, the theories that describe them provide the best explanation for the results of various experiments we perform. The mere existence of the Universe, and all the wonders included therein, provides a basis for postulating the existence of something Divine.

Fair enough, the topic of God is difficult and related to an enigmatic side of reality. For many the immediate response, and the simplest answer, may be “no such thing.” As Winston Churchill once said: “All complicated questions have a simple answer. Unfortunately, the answer is always wrong.”

The Holy Grail of science is to develop a theory that ties together all the physical laws operating in the Universe. This Grail has been referred to as the *Grand Unified Theory*, or just GUT for short. The physicist Stephen Hawking has suggested that if we are able to set up such a model for our world, including a complete understanding of the forces of nature, we will have a description of God’s soul.¹²

Hawking’s notion fits well with the paradigm that the Universe is the “body” of God, and the principles guiding that body are its soul. The description reflects, of course, a tendency to add human characteristics to our vision of God. One may argue that God is far too intangible and indefinable to entail anything resembling either a body or a soul. Moreover, the human soul is a difficult concept to apprehend. We may have ideas about what the word “soul” means, but even if we managed to describe each molecule in the body, we would not have any clear description of what the soul really consists

¹² S. Hawking wrote about God’s soul in his book *A Brief History of Time* (1998).

of. Similarly, even if we can provide a unifying description of the laws of physics, we will still be short of a complete rendering of what God is. God seems to be something more than the sum of elementary particles and laws of nature. Although the above brush strokes added to the portrait may be relevant, a complete portrait is likely to be beyond our conceptual capacity.

We can make an exact photographic image of a face, but it is equally beyond our capacity, whether we use language or paint, to give an accurate description of the personality reflected in the face. Yet it is easier to paint a good portrait if you learn to know the person. Although an understanding of natural laws does not provide complete insight into the Divine, such knowledge may help us get closer to God.

It is in human nature to desire explanations—whether substantiated or not—but we also have in us a natural skepticism. This combination gives us the ability to believe almost anything, but also to deny even the most rational presentations. It is natural to ask whether there is any God, and if we believe the answer is yes, we want to know what God is like. But as long as nobody knows for sure the true face of God, each person should be allowed to form his or her own image in the same way that you form a personal impression of someone you are fond of.

The strongest arguments for God's existence may be found inside ourselves. In biological terms we are apes who happened to lose our fur. There are, however, aspects of human nature that suggest we are something more, that evolution made an unprecedented leap when shaping humans, that we were given characteristics that distinguish us from all other organisms. These properties are not incompatible with how the evolutionary process operates, but they are so special, so biologically surprising, that it is reasonable to wonder whether there could be something more at work than just random mutations. The main properties I have in mind are our intellect, our capacity for compassion and morality, our self-consciousness, and our ability to sense something Divine.

Current knowledge of the evolutionary process makes it possible to offer a vague description of what happened over the last five million years, during which time our ancestors evolved from apes to humans, but this description does not resolve the presumption that

what happened was totally unprecedented and astounding. If a biologist from another planet had appeared on Earth five million years ago, that person would hardly guess that an organism with our properties would emerge. We tend to take our capabilities for granted, but they represent both a surprising and wonderful nudge of the evolutionary process. It is therefore tempting to imagine divine guidance behind what happened. Perhaps the Divine is incapable of direct intervention in shaping the human mind, but it may still be responsible for the design of the natural laws that made human evolution possible.¹³

The prominent position of science in our society is, in my mind, an argument in favor of incorporating the concept of God into the scientific models of reality. I believe this is possible, but I also believe that it is not required for the purpose of engaging God. God is not very suitable as a scientific target. Religion and science are independent entities, and thrive best when living separate lives in the human mind. The problem is not that the two necessarily end up in conflict if combined. God, as presented here, is compatible with current science—at least that is the way I see it. Thus, you need not deny knowledge in order to find room for faith. The point is that God's place in the Universe lies beyond the reach of our scientific methods. The two, religion and science, have more to offer us if we let them occupy separate "niches." While science is best served by a rational and non-emotional approach, other aspects of the mind should be engaged when seeking God. That is to say, even though both religion and science are about believing in something, it is a question of two different ways to use the word "believe." Actually, it is about two completely different ways to use your brain. Science is about constructing models based on empirical research and observations. In order to find God you must employ passion.

The philosophers of antiquity saw two different approaches aimed at grasping reality. Plato referred to them as *mythos* and *logos*. The two were considered equally valid. *Logos* (reason and science) was suitable for elucidating material reality, while *mythos* outlined the more mysterious and spiritual aspects of human existence.

¹³ M. Hauser discusses whether there are fundamental differences between human and animal brains in his article "The Origin of the Mind," *Scientific American* (September 2009): 30–37.

It is, of course, possible to ignore any spiritual encounters—in the same way that you can choose to forgo love or not to listen to music. The point is that most of us benefit from engaging not only in the intellectual, but also the spiritual, the aesthetic, and the emotional aspects of being human. The brain has an enormous potential, and a range of properties that are working side by side; they all serve us in different ways. For example, when you play tennis, you use other parts of the brain than if you are studying biology. Most people would agree that there is no conflict between engaging in sports and studying natural sciences. The point is that these activities do not need to be in conflict with spiritual involvement either. The various activities—sports, science, and religion—are simply cared for by different brain modules.

It is possible to improve your skills in sports and science; you can also improve your spiritual sensitivity. In most forms of sport, it is important to develop the capacity of the unconscious part of the brain to provide optimal control of muscles. Science is about expanding our comprehension about how the Universe works. Religion, on the other hand, is about expressing your devotion in order to sense and enjoy God's presence.

God's Attributes

I have argued that God has a place not only in the human mind, but also in the Universe. The next big question is to what extent we can outline God's attributes. Did God just put the scene in motion, or does God have the power to intervene? Was creation a creative event, or is it a creative process? And, if it is possible for God to "stretch out the hand" and touch the Creation, in what way and with what capacity?

Most Christians envision an active God with the ability to help people. Some, however, including the movement referred to as Deism, believe God created the world, but has not been active since then. The Deists paint a minimalist portrait of God—a version that includes a Divine force in the realms of the Universe, but as a rather faceless force.¹⁴

¹⁴ T. Paine, *Age of Reason, Being an Investigation of True and Fabulous Theology* (1795), end of Part I and end of Part II.

I believe the question about the power inherent in the Divine is another of the enigmas that lie beyond human ability to resolve; yet there are some indications that provide a basis for opinions. And even if we cannot confirm that there is a Divine force with the capacity to affect the passage of time—a God that looks after the inhabitants of the Universe—it is up to you to include these properties in your personal portrait of God.

One source for speculation as to God's attributes is to ask whether the development of the Universe was put on an unwavering track right from the start. Is everything predetermined; or can events be affected, albeit in small and insignificant ways, by forces or players that operate within the Universe? If the latter is true, it is possible to consider the impact as an influence originating from the Divine.

The answer to these questions seems to be in favor of non-determinism. For example, the current model of the Big Bang suggests that at the very beginning the physical laws differed from those that apply today. Furthermore, even the current laws may be obsolete when matter is caught up in what we refer to as black holes.¹⁵ The evolutionary process forming life is full of surprises, which may reflect the meddling of a Divine power (to be discussed in the next chapter). These arguments, however, only allow for a conditional “yes” as to influence because the examples may be interpreted as odd reflections of laws laid down from the beginning.

Perhaps the strongest argument suggesting some flexibility is that we humans actually have the capacity to influence events in a way that could hardly be predetermined at the beginning of time. We have a considerable dose of free will. We can use our free will to deliberately change history, at least as it plays out on our planet. As human capacities are consequences of evolution, our free will offers substance to the idea that God, using us as mediators, has an opportunity to influence.

¹⁵ Black holes are presumably formed when giant stars collapse. Matter is condensed to extreme densities, causing a gravitational force so strong that even the photons constituting light are retained; consequently, the entities appears to be black. See: C. Barcelo, S. Liberati, S. Sonego and M. Visser, “Black Stars, not Holes” *Scientific American* (October 2009): 20–27.



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It is tempting to take this idea one step further: Perhaps *we* are God's hand. Perhaps the evolutionary process was established for the purpose of creating such a player.

If the Divine has the capacity to exert authority, the next big question is: Are we are dealing with a benign, neutral, or a malignant power?

It seems easy to argue that the creation of the Universe is not consistent with a malicious Creator. On the other hand, based on human predicaments and the prospect of a bleak destiny, a caring and intervening God is not that obvious either. A more appropriate starting point may be to realize that whether it is an animal or a God we want to characterize, we have this tendency to add human attributes to our descriptions. We like to *anthropomorphize*, that is, think about any entity or creature we care about as "human-like." That goes for our pet animals—and for our relationship to whatever we consider Divine. Adjectives like good and bad are probably about as irrelevant in the description of God as in the description of

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flowers or bacteria. God is far beyond those kinds of concepts. The Divine power is a supreme principle with qualities of an entirely different type than what evolution has incorporated into the human brain. Yet, it seems natural to view the Force behind our very existence with positive eyes. It is difficult to consider life as springing from a non-benevolent power.

The above viewpoint entails a problem in the form of the following quandary: If God is good, why do people suffer so much? Should not everyone be kind and happy in a Universe created by a well-intentioned spirit?

One possible answer is that Divine influence does not necessarily imply that God is omnipotent with regard to the affairs taking place in the world. Right from the beginning there may have been limitations inherent in the Creation. For instance, there may have been limitations embedded in the evolutionary process, which restrict what sort of life forms that can evolve. We know that evolution does not create perfect organisms. Genes develop qualities that are sufficient to survive and procreate—nothing more. In fact, often less: Most of the species that once roamed the Earth are now extinct. No organism is immune to sickness. Indeed, we humans have a long list of weak points: We are struggling with a poorly constructed spine, a propensity for depression, and an unfortunate tendency to display anger and aggression.¹⁶

The process of evolution is not capable of creating ideal and flawless animals. Ambition and concomitant aggression come as a consequence of the “struggle for existence.” That is, individuals who do not in some way exert themselves will lose in the evolutionary contest. The rules governing evolution depend ultimately on the physical and chemical laws of the Universe. These may again be restricted by principles we do not recognize. The Universe depends on having a set of rules to operate by, and it is very difficult to imagine laws of nature that do not constitute limitations as to what is possible to achieve. In other words, it seems almost unfeasible to have a reality with intelligent life, without aspects of life that are unfortunate for the individual.

¹⁶ G. Marcu and H. Mifflin describe in their book, *Kluge: The Haphazard Construction of the Human Mind* (2008), the brain as an organ kept in functional order by the equivalent of chewing gum and tape.

Many people prefer to see God as an active and sympathetic force; however, both the choice of the term God and the choice of adding particular qualities are personal preferences. God's attributes are not intended to be defined, at least not by science or logic; thus, we may as well let our feelings decide. The answer rests with our capacity to believe—and belief is based on confidence, but not certainty.

I believe evolution has shaped us to be a religious life form, which means that God has a voice inside us. By listening to that voice we find an extra source of strength, support, and meaning. Many people obtain a lot of help from God in this way. The capacity to sense the Divine is a gift, and those who have this ability possess a brilliant gem in their mind. God can help us because of the way evolution has shaped us. (See Appendix III: *Religion: The Role of the Genes*, p. xxx.)

It is important to realize that even if the Divine is in us, it is not obvious that the world will be a better place as a consequence of our capacity to exercise free will. We are a product of the same process that shaped all other forms of life on Earth, and thus subject to the same limitations. We may see ourselves as a chosen species, but that does not make us infallible. It is not obvious that our conduct is going to save the environment—or ourselves. God may help us, but we need to help God.

Connecting with the Divine

The entity referred to as God has presumably been there all the time, but to our knowledge, it is only recently that a species has become able to sense it. The first human awareness may have occurred more than a million years ago, or perhaps only a hundred thousand years ago. At one point people began to imagine that there is a higher spirit permeating the world. Ever since we gained this capacity, the Divine presence has been a focus of life for many people.

During these years, mankind probably developed at least 100,000 belief systems. They all have stories, myths, and rituals. Most are long forgotten, but new ones are coming, so there are still a reasonable number of options to choose from. Every period and every culture in human history has its own description of God, and

within each denomination there are several ways to worship. Actually, there appear to be as many ways to relate to God as there are people. It is up to each person to paint his or her personal portrait of God.¹⁷

Tribal people tend to regard the Divine as spirits inhabiting features of the nature surrounding them. Buddhism and Taoism can be seen as philosophical schools that worship their founders, but they also seem to aim at the same spirituality as the more typical religions. Some faiths, like Greek and Roman mythology, operate with a plethora of gods, while others see only a single Divine entity. It is interesting to note that even those who envision various deities with different functions typically consider them manifestations of a single, primary divinity. The Hindus, for example, view Brahman as a shapeless phenomenon—a spirit that exists in both human and supernatural beings. They envision Brahman to be what the Universe is made of, a notion that is close to the present spiritual concept.

With so many portraits of God, it seems natural to ask whether all the alternatives really are versions of the same Divine principle? This text is based on the answer being “yes,” but the issue deserves elaboration.

Insight into human nature provides a reasonable starting point. Is our aptitude to sense God laid down in our genes, or is it just a cultural phenomenon that has arisen independently many times as a result of other aspects of the human psyche? If the first option is correct, our ability to feel the Force was formed by the process of evolution, and it follows that there must be a common core of all religions. If however, religion is a cultural phenomenon, it is less obvious that the different denominations have a shared core. A scientific assessment of human nature points toward the former alternative. (For a deeper discussion, see Appendix III: *Religion: The Role of the Genes*, p. xxx.) In other words, it seems reasonable to envision a God that has bestowed upon us this capacity, by use of the evolu-

¹⁷ To learn more about different creeds, I recommend A. F. C. Wallace, *Religion: An Anthropological View* (1966); or *Human Relation Area File* (available on a CD and from the Internet pages of Yale University).

tionary process, as a basis for making us aware of God. This implies that all denominations are reflections of the same Divine entity.¹⁸

It is reasonably obvious that there are a variety of ways to describe God. Differences in cultural and individual expression are even more evident in the field of fashion and music; yet for most people it is not a problem that, for example, choice of clothes or taste in tunes reflects personal preferences. Neither should it bother anyone that the way we relate to God reflects cultural and individual views.

It is the personal portraits people relate to. These are the ones that affect us. An obvious question is then whether some portraits, or rather the associated belief systems, are better than others. The question has nothing to do with how accurate these are. We do not have any correct answer to the question how God should be portrayed; thus, the question is solely about how the different creeds function.

There are many ways to build a relationship with another person; there are equally many ways to relate to God. Nevertheless, it is conceivable that some kinds of ties to fellow human beings—some forms of love and friendship—are more appropriate than others. The same may apply to our relationship with God.

Most religions are conservative, but even the most orthodox creeds change over time. They are able to adapt to new ideas without necessarily tearing down what was important in the original teachings. It should be possible to influence this direction of change—to help develop existing belief systems toward greater benefit for both religious adherents and mankind in general.

Science moves forward by generating ever more accurate and convincing descriptions of reality; when it comes to religion, however, it will never be a question of finding the one true description of the Divine. Instead, other issues do matter. For example, which denomination offers its congregation the most rewarding relationship with God, and which serves best the community it is a part of?

¹⁸ For discussions on whether the tendency to be religious is a consequence of evolution, see P. Boyer, *Religion Explained* (2002); S. Atran, *In God We Trust: The Evolutionary Landscape of Religion* (2002); or B. Grinde, "The Biology of Religion: A Darwinian Gospel," *Journal of Social and Evolutionary Systems* 21 (1998): 19–28. [Which issue of 21?]

We all have our strengths and weaknesses; the same may be said about belief systems. On the other hand, the intention should not be to end up with just one denomination. Each individual is unique, and we are part of, and influenced by, different cultural traditions. It is therefore an advantage to have a variety of creeds available so that as many as possible can find a place of worship that suits them. Nevertheless, it is possible to suggest some general recommendations.

A good creed helps us improve our capacity to sense God's presence. The objective of religious rituals and sermons should be to facilitate an engagement in the Divine, and thereby derive strength and joy from faith. That is, the icons and the narratives contained in the different belief systems are important because they provide nourishment for our emotions. In that way God may become a close friend and loving companion.

Each individual must find his or her own inner spiritual voice, but at the same time it is important to find a community for shared worship. Most people prefer to be a member of a denomination that caters to social connections and thereby directs followers toward building strong ties not only with God, but also with each other. Socializing is particularly important because religion has a lot to offer not just the individual, but also the community. Indeed, a central task for most denominations is to improve social life; for example by encouraging compassion and by being involved in establishing useful codes of ethics.

It can be difficult to separate the spiritual from the material world. To avoid conflicts and unnecessary argument it may be preferable to have a belief system that accepts a scientific understanding of reality. Doctrines that are far removed from current rational thinking tend to be vulnerable to criticism and rejection. And if the congregation starts to doubt the anecdotes and accounts of their religion, they easily begin to doubt the existence of the underlying principle: They lose faith in God.

Moreover, in a world where all creeds are mixed together, it is important that the portraits of God do not annoy or counteract other ways of relating to the Divine. All religions should acknowledge that they are variations of a common theme. Accepting a scientific description of the Divine core ought to improve tolerance for alternative portraits. An additional advantage for those who see that all

faiths revolve around the same Divine entity is that they can feel at home in any temple or church.

Early faiths were erected at a time when ways of living presumably were more uniform. In those days people rarely met with strangers raised under different cultural traditions. The world has changed. Present creeds should take into account that they are part of a vast, colorful, multicultural community, which means that they ought to be a little less assertive and a bit more open to variation than what was necessary ten thousand years ago.

At one point it was important to let devils and demons enter the doctrines for the purpose of scaring people away from evil actions. Today this may be less imperative. God should contribute toward making us more considerate and compassionate, but in this endeavor rewards may prove more useful than the fear of punishment. People prefer to be nice because it feels good, because their conscience tells them so, and because it is sensed as preferred by God, rather than because they otherwise risk Divine retaliation. In other words, the contribution religion may offer to improve human relations is presumably best served by a positive sentiment. Secular laws, which were not well developed a few thousand years ago, are today more suitable for handling punishment as a preventive agent. Notions such as purgatory and doomsday may be important in societies where secular regulatory systems are not functioning well, but of less use in developed countries.

In addition to the above suggestions, creeds should take into account that humans are shaped by the evolutionary process. It means that we are born with special qualities in the form of emotions and behavioral tendencies. Faith should adapt to these tendencies; that is, the various creeds should adjust to the inherent nature of being human, but at the same time discourage the less fortunate aspects of human nature. God and man are intertwined. The better we understand our own species, the better we are able to find ways of relating to the Divine.

Most religions have evolved gradually over thousands of years. They may have their weaknesses, but they also bring along an ocean of wisdom. They have rituals that bring people together, both with each other and with God, and they provide support in difficult times. Moreover, faith provides a meaning of life, and a hope that

everything is not over when the body eventually stops functioning. There may be room for improvements, but the wisdom inherited should not be wasted.

Prophets

Not only has Earth seen a considerable variety of creeds, there have also been numerous prophets. I use the term *prophet* for any person who helps others, either by kindness or by providing novel insight—where “others” may include family, community, or mankind. This implies that anyone can be a prophet. Yet, some people have had a greater and more profound impact compared to the average nice person. In virtue of their wisdom and their personal qualities they have meant a lot to a large number of people—not only their contemporaries, but generations to come. I shall mention a few of them, in chronological order: Abraham, Moses, Zarathustra, Confucius, Buddha, Plato, Aristotle, Jesus, Mohammed, Sankara, Nanak, DaVinci, Newton, Baha’u’llah, Darwin, and Einstein. Some initiated new religions, while others are famous primarily because they discovered significant pieces in our understanding of the Universe and life on Earth. For me they are all great prophets because they stood for appreciable contributions that have had wide-ranging ramifications.

Several of the prophets who are included in the history books realized that all belief systems are just variations of a common theme; for example, Akhbar, Vivekanada, and Baha’u’llah. (See Fig. 2: *Pioneers of a Unified Religion*, p. 57).

I hope that religions will eventually learn to deal with religiosity in a way that unites **people** rather than **pitting** people against each other.

It is interesting to note that those who probably had the greatest impact—both to their contemporaries and later generations—were not those who gave us the greatest leaps in understanding, but rather the prophets who taught us new ways of relating to the Divine. The supreme prophets, moreover, not only opened our eyes; they were also living models inspiring a way of life. They managed to cultivate the best qualities of mankind: empathy, honesty, generosity, and responsibility. Even more striking, their effect on fellow

humans was presumably not just a consequence of their teachings, but of an inner glow reflecting integrity, satisfaction, and peace of mind. *They taught us that by developing a relationship with God, it is possible to live with compassion and at the same time be happy.*

Figure 2: Pioneers of a Unified Religion

Ten thousand years ago there may have been an even larger variety of religious legends than what we have today. However, since neighboring tribes most likely would more or less follow the same doctrines, and since there was limited contact between distant tribes, this diversity would not be the cause of conflicts. Today there seem to be endless wars in which religious disparities play a central part. It is far from obvious that the differences in faith are the actual underlying cause of disputes, but spiritual sentiments are aroused. Religions are used, or misused, for the purpose of combat. In this situation, the world has a lot to gain by having prophets stand up and declare that everybody actually worship the same God, and that differences in doctrines do not matter.

King Asoka was one of the first persons known to see this point—and to make an attempt at dealing with the problem. Asoka lived from 304 B.C.–232 B.C. and is regarded as one of India's greatest leaders. He turned to Buddhism after witnessing the burden inflicted on the population by his own crusades, and from then on he worked for peace and consequently demanded equality and tolerance among religions. One of his decrees was: "It is forbidden to condemn other creeds—true believers honor whatever they have in them that is worth honoring."

Guru Nanak (1469–1539), the founder of Sikhism, was another Indian—with similar ideals. He managed to unite Muslims and Hindus, rich and poor together, to worship under the same roof. Shortly thereafter yet another Indian turned up with a related mission: Akbar, a Mogul emperor (1542–1605), tried to create a synthesis of all creeds known to him. Again it was Hinduism and Islam that took center stage, as these were the dominant religions in the region at the time.

In the nineteenth century there were several prophets with visions of a common God. They all pointed out that the different stories of faith are simply variations on a common theme. The more famous ones include Sri Ramakrishna and his follower Vivekananda, as well as Baha'u'llah. Vivekananda expressed ideas related to those I try to promote: "The Divine exists on two levels—a higher level without any descriptive qualities, and a lower level of which the different creeds offer a depiction."

Sikhs, the Ramakrishna movement, and the Bahá'í faith are still with us today. So are related movements originating in the Jewish-Christian tradition, such as the Unitarian church.

Syncretism—the intermingling of religions based on the idea that they are all reflections of the same divinity—is what the world needs more than ever. It is tempting to argue that anything else is heathen. Unfortunately syncretism is difficult to achieve. Those who believe they have found the one and only true God are typical-

All the great prophets came up with novel notions, or at least they put together previous knowledge in new and constructive ways. They also managed to present their wisdom in a manner that appealed not only to those around them, but to people with different backgrounds; which is why their teachings live on. It is nevertheless important to keep in mind that the prophets acquired their wisdom from within a particular cultural tradition. Their prophecy reflects, and is limited by, both the cultural background and their personal characteristics. This implies that the details of what they put forth were not necessarily intended to stand as eternal truths. It also means that one may very well be critical of certain aspects of their teachings without showing lack of respect or diminishing their contributions.

Some devotees may perhaps disagree with the statement above, but I remain convinced that the prophets themselves would have agreed. For example, as Buddha supposedly said: "My words should be accepted only after careful consideration, not out of respect for me."

Unity with the Universe

It is possible to enter a state of mind where you have a particularly strong sensation of God's presence. Some people describe this as a feeling of "God's blessing" or "unity with the Universe." The condition apparently reflects a property that has been invested in us—perhaps for the purpose of having an awareness of the Divine. We know something about what parts of the brain are activated, and there are data suggesting that the feeling is associated with release of oxytocin, the "love hormone."¹⁹

The various descriptions of this state of mind typically include "a sense of unity." You perceive that you are part of the nature surrounding you, and rejoice in being a small brick in the vastness of the cosmos. Plants, animals, and people are all part of the fellowship. Stated another way, our ability to sense God's presence is at the same time a propensity to sense life and the Universe. Those who are capable of this experience describe it as a wonderful feeling. It is interesting to note that the fellowship recognized actually may reflect a more accurate way to understand reality compared to the everyday conception. The normal way of looking at life is to make a clear distinction between *me* and *everything else*. Evolution has equipped us with a strong tendency to distinguish our own person from the environment surrounding us. This dualistic point of view reflects the default setting of the mind, presumably because in evolutionary terms it is necessary that you promote the genes carried within you. When having a religious experience, it is possible to escape this dualism and instead feel united with your surroundings.

The point is that, physically speaking, it seems appropriate to describe the individual as "an integrated part of everything"—a brick with no obvious distinction from all the other bricks making

¹⁹ Considerable research has been carried out for the purpose of understanding this state of mind. See, for example, A. Newberg, E. d'Aquili and V. Rause, *Why God Won't Go Away* (2001); O. Blanke, S. Ortigue, T. Landis and M. Seeck, "Stimulating Illusory Own Body Perceptions" *Nature*, 419 (2002): 269; or M. Beauregard and D. O'Leary, *The Spiritual Brain: A Neuroscientist's Case for the Existence of the Soul* (2007).

up the Universe. You as a person, and thereby also your brain and mind, are made of the same elementary particles and atoms as the rest of the world. There is no definite distinction between the particles that comprise you and those outside your body; rather there is a flux of atoms going in and out. The skin forms a sort of boundary, but physically speaking this boundary is not that much more distinct than the transition between your liver and stomach, or between a rock and the surrounding soil. As seen from the outside, the entire Universe may be described as one big soup of elementary particles. A closer scrutiny reveals that the concentration varies enormously; in many places the particles have combined to form atoms and molecules, and in some locations the molecules are merged into larger units. But apart from these deviations, the Universe is a reasonably homogeneous soup. The building blocks, meaning the elementary particles, remain exactly the same throughout the vastness of space. You are in reality only a local accumulation.

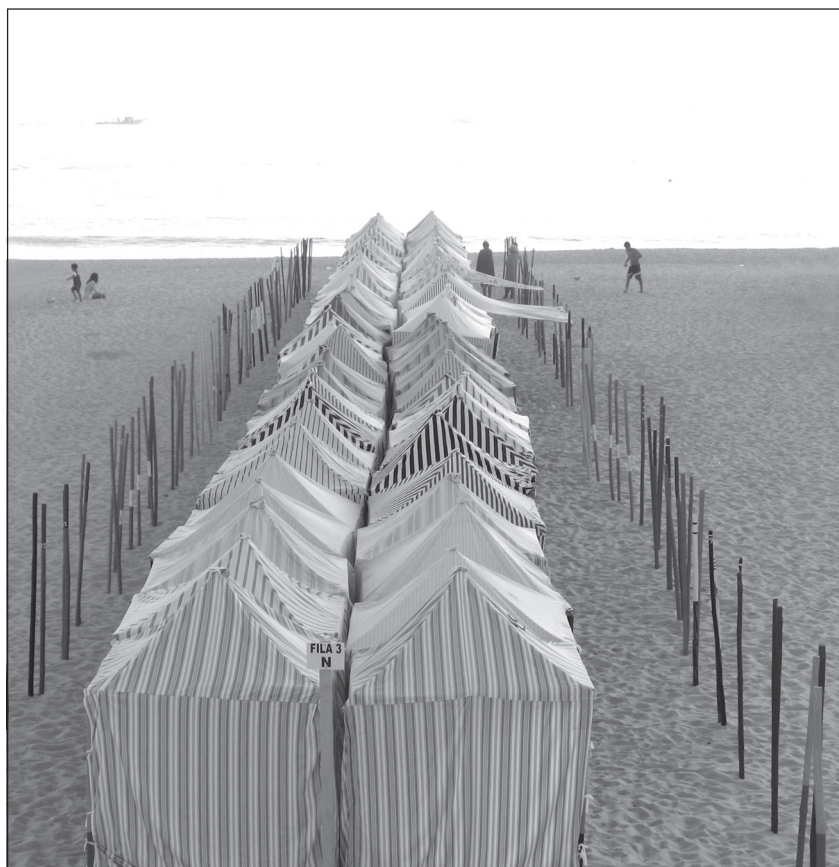
I believe it may be useful to lean back occasionally and envision yourself as a part of a larger whole—a united cosmos—and allow this vision to mean something to you. The ability to feel an affinity with all living things, to sense a “unity with all,” is not only pleasurable, but it may help us care for each other, and care for our corner of the Creation.

Both science and religion are important human endeavors. Science enables us to exploit the technological opportunities, whereas religion helps us with our emotional life and personal relations. We need both to cope with our role in the Theater of Earth. That is, we need to further expand our knowledge and to identify the best possible ways of relating to the Divine.

There are many problematic aspects of human nature. We are governed not only by love and compassion, but also by hatred, jealousy, and envy. God can help us to make the best of the situation. The more you let God inspire your life, the more joy and love the Divine offers you in return. Similarly, the better your local community provides for religion, the more benefits can be harvested from the positive forces therein—at least as long as the negative impact can be curtailed. When the beauty and complexity of the Universe becomes apparent, it is natural to perceive a Divine power. Science only describes the surface, the stage for all the miracles that make

up the world, religion takes you to the core, to the script of the performance.

Reality may include more than what the traditional sciences are in a position to explain.



Beach